

**Additional Practice****Lesson 5.4**

For Exercises 1–5, use these four functions.

$$g(t) = 10 + 4t \quad h(t) = t^2 - 4 \quad t \xrightarrow{j} 5(t + 5) \quad t \xrightarrow{k} 5t - 4$$

- For which function(s) is the output 21 for an input of 5?
- Which function results in this input-output table?
- What input(s), if any, give the same outputs for function  $g$  and for function  $k$ ?
- What input(s), if any, give the same outputs for function  $g$  and for function  $j$ ?
- What input(s), if any, give the same outputs for function  $j$  and for function  $k$ ?

Input	Output
0	25
1	30

This number trick always results in the same number. Pick a number.

Add 1. Square the result. Subtract 1. Divide by the original number. Finally, subtract the original number.

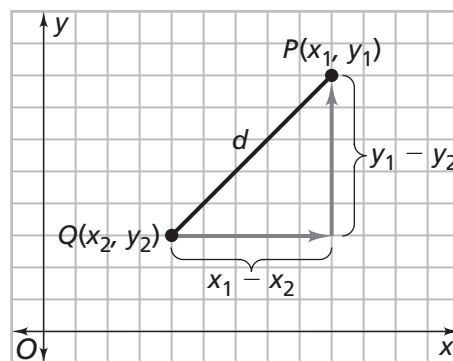
- Choose at least three different numbers as inputs for the number trick function. Write the input-output pairs in a table.
- Use the input  $x$  as the starting number. Apply each step of the number trick and record the result of each step. What is the final result?

For Exercises 8–11, use the functions  $p(x) = x^2 + 8$  and  $q(x) = |5 - 2x|$ . Evaluate each function.

- $p(0)$ ,  $p(2)$ , and  $p(-2)$
- $q(0)$ ,  $q(3)$ , and  $q(-3)$
- $p(5) - 8$
- $p(-5) + q(-5)$

- Let  $d$  represent a function that uses two points as inputs and gives back a number as an output. The two input points are  $P(x_1, y_1)$  and  $Q(x_2, y_2)$ .

$$d(P, Q) = \sqrt{(x_1 - x_2)^2 + (y_1 - y_2)^2}$$

Calculate  $d(P, Q)$  when  $P$  is (3, 10) and  $Q$  is (15, 5).

For Exercises 13–20, use the functions

 $r(x) = 5x - 3$  and  $s(x) = \frac{x + 3}{5}$  to evaluate each function.

- $r(1)$
- $r(r(1))$
- $r(r(r(1)))$
- $s(7)$
- $s(s(7))$
- $r(s(12))$
- $s(r(12))$
- $r(r(s(7)))$